GARBAGE INCINERATION FOR COLUMBUS

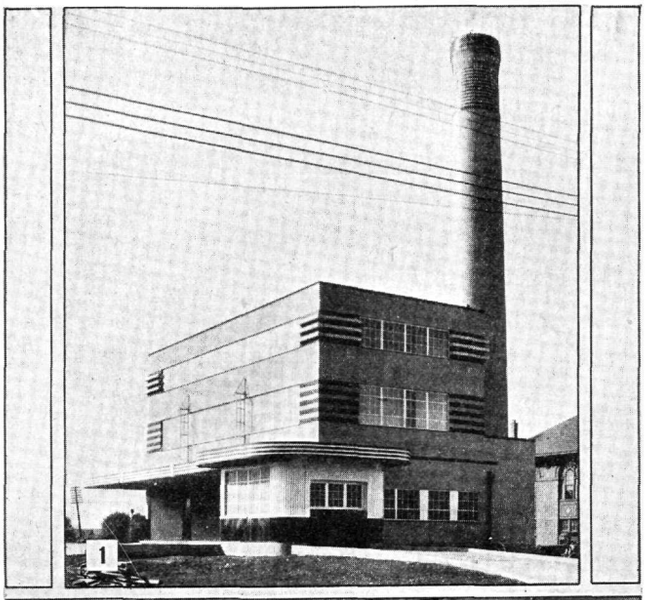
History

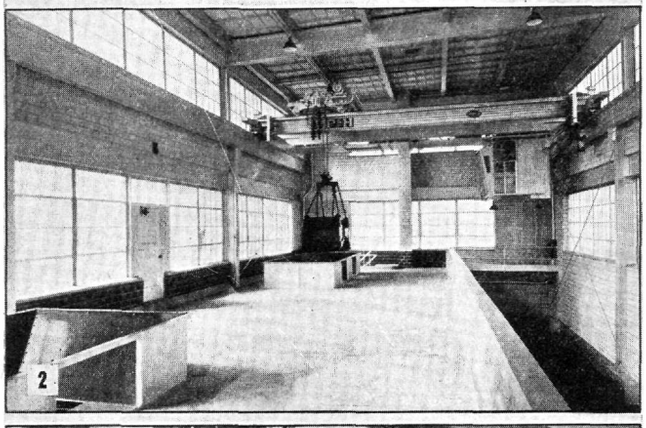
Prior to the fall of 1935 all the garbage in Columbus was disposed of by reduction, and the by-products sold. This method necessitated the isolation of garbage from all other refuse. The expense coincident with haulage to a distant point, together with the falling off of the market for tankage and fertilizer products clearly indicated that a new method for refuse disposal was needed. Incineration seemed to solve the problem of reducing the cost of handling, and all the disagreeable and unhealthy odors incident to the old system.

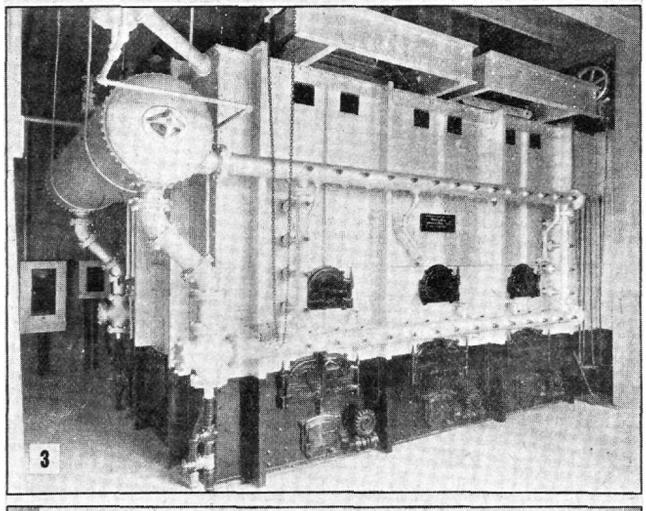
Preliminary Study

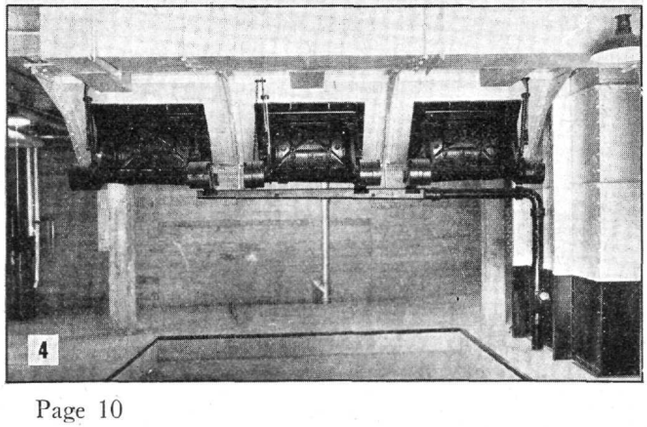
Records of tonnage and variation in quantity from month to month, had been collected over a period of 21 years. With information obtained from the inspection of these records and records of other American cities of similar size and type, the probable daily maximum amount of refuse was determined. A study made of collection maps and other conditions peculiar to Columbus resulted in the decision to build two incinerating plants, a 150 ton plant south of the center of town, and a 100 ton plant in the north-west section. The site for the central plant was chosen directly in front of an old transfer station and very close to the center of collection for that district. As it is the Central Incinerator with which this article is concerned, no more will be said about the northwest plant.

In working out the drawings and specifications for the incinerators it was decided to limit the city's designs to the buildings, to specify the equipment and to allow the manufacturers to fit their furnace designs to the specifications provided. Since the design of incinerators varies widely, the plan of the building naturally became quite a problem. However, working on furnace information supplied by manufacturers, a design was evolved which would accommodate any of the major top-feed types.









Method of Handling

There are two ways to handle refuse in an incinerator: either the material is dumped directly into hoppers above it and then fed into the furnace, or it is dumped at a low level and fed into the hoppers with a crane and bucket. As the site selected was flat and near the river, precluding the possibility of dumping above the furnaces, except at prohibitive cost, the second method was decided upon.

Design of The Plant

The building is 50 feet wide, 90 feet long, and 45 feet high from grade to roof, with a basement 11 feet deep. It is of fireproof construction with brick walls, structural steel skeleton, concrete floors and roof, and steel factory sash. The architecture adopted was the contemporary style, popularized at the Century of Progress Exposition. The chimney is 140 feet high, with an outside base diameter of 16 feet and a top diameter of 11½ feet. It is lined with fire-brick, and has an inside diameter of 8 feet throughout its entire height. Two furnaces of 75 tons capacity each are designed to incinerate a mixture of 70 per cent garbage and 30 per cent combustible rubbish having a moisture content of 50 per cent.

Operating Procedure

The operating procedure is simple, being accomplished in four steps. The refuse is fed first into a receiving basket where it is dried and initial combustion started. From there it passes directly into the burning grates where it is reduced to a practically inorganic ash. The ashes are then passed into the ash pits below the furnaces and quenched. They can then be dropped directly into trucks and hauled away to the city dump.

Combustion gases pass the entire length of the furnaces and over bridge walls into combustion chambers. After passing through the combustion chambers the gases are conducted through preheaters to the flues, and thence through a single header flue into the chimney. Dampers are provided in the flues to control the velocity of the gases and traps are introduced throughout the system to collect fly ash before it reaches the chimney. Forced draft is necessary because of the great amount of air required to dry and burn a material so high in moisture content.

Tests conducted on the completed incinerator showed that very little smoke and no objectionable odors were present. The building was erected and incinerators installed by the Decarie Incinerator Corp. of New York City at a cost of $118,000. Mr. Edward A. Ramsey of the City Division of Engineering and Construction was the architect and designing engineer for this project.

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1. **Outside of Plant**
2. **Charging Floor and Hoppers**
3. **Stoking Floor and Furnaces**
4. **Ash Hoppers and Discharging Floor**

Cuts Courtesy of The American City Magazine